

IN THE CLAIMS:

Please cancel claims 2 and 5 without prejudice to or disclaimer of the subject matter recited therein.

Please amend claims 1 and 6 as follows:

LISTING OF CURRENT CLAIMS

Claim 1. (Currently Amended) An apparatus for analyzing performance of a multi-stage radio frequency amplifier, comprising:

an input power source circuit;

5 a front-stage matching network receiving power provided by the input power source circuit;

a mid-stage network connected in back of the front-stage matching network and receiving power transferred by the front-stage matching network, wherein a plurality of single-stage amplifiers and a plurality of mid-stage matching networks are in the mid-stage network;

10 a back-stage matching network connected in back of the mid-stage network; and

an output circuit connected in back of the back-stage matching network; ~~network;~~

15 wherein the mid-stage network further comprises a plurality of single-stage amplifiers and a plurality of mid-stage matching networks, and every mid-stage matching network is clipped between two single-stage amplifiers, wherein a power source reflection coefficient Γ_s of front stage matching network and a load reflection coefficient Γ_L of the back stage matching network are obtained respectively, the power source terminal reflection coefficient Γ_s is adjusted to be maximum power source terminal reflection coefficient $\Gamma_{s,max}$ for conjugate matching with an input reflection coefficient Γ_{IN} of the mid-stage network, and the load reflection coefficient Γ_L is also adjusted to be maximum load reflection coefficient $\Gamma_{L,max}$ for conjugate matching with an output reflection coefficient Γ_{OUT} of mid-stage network.

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Claim 2. (Canceled)

Claim 3. (Original) The apparatus for analyzing performance of a multi-stage radio frequency amplifier as in claim 1, wherein the input power source circuit comprises a power generating device and an input characteristic impedance.

Claim 4. (Original) The apparatus for analyzing performance of a multi-stage radio frequency amplifier as in claim 1, wherein the output circuit is an output characteristic impedance with 50 ohms.

Claim 5. (Canceled)

Claim 6. (Currently Amended) The apparatus for analyzing performance of a multi-stage radio frequency amplifier as in claim 5, 1, wherein after the maximum gain of the input-stage matching network and of output-stage matching network are acquired, the above two matching network are neglected, and the mid-stage network is treated as a first-stage amplifier, a first-stage mid matching network and a second-stage amplifier.

Claim 7. (Original) The apparatus for analyzing performance of a multi-stage radio frequency amplifier as in claim 6, wherein gain values of the first-stage amplifier and of the second-stage amplifier are fixed.

Claim 8. (Original) The apparatus for analyzing performance of a multi-stage radio frequency amplifier as in claim 6, wherein a mid matching network gain G_L and power source terminal mid-matching network G_S are obtained by using the load reflection coefficient Γ_L and the power source terminal reflection coefficient Γ_S , and a power source matching network maximum gain G_{Smax} and a load matching network maximum gain G_{Lmax} can be made by adjusting the power source terminal reflection coefficients Γ_S and the load reflection coefficient Γ_L , respectively.

Claim 9. (Original) The apparatus for analyzing performance of a multi-stage radio frequency amplifier as in claim 7, wherein the first-stage amplifier with fixed gain value and the second-stage amplifier with fixed gain value are neglected, and the mid-matching network is viewed as a first-stage amplifier, a first-stage mid matching network and a second-stage amplifier.

Claim 10. (Original) The apparatus for analyzing performance of a multi-stage radio frequency amplifier as in claim 9, wherein the power source terminal reflection coefficients Γ_s , and the load reflection coefficient Γ_L , are measured from an end of the first mid-matching network and an end of the second mid-matching network, respectively.

Claim 11. (Original) A method for analyzing performance of a multi-stage radio frequency amplifier, wherein the application comprises improving a prior art trial and error method, the method providing:

5 identifying whether an unset external network is either a matching network or an amplifier network;

10 simplifying the multi-stage radio frequency amplifier, wherein the multi-stage radio frequency amplifier is decomposed into a front-stage matching network, a mid-stage network and a back-stage matching network when an external network of the multi-stage radio frequency amplifier is a matching network, and the multi-stage radio frequency amplifier is decomposed into a front-stage amplifier, a mid-stage matching network and a back-stage amplifier;

adjusting a power source terminal reflection coefficient Γ_s to be a maximum power source terminal reflection coefficient $\Gamma_{s,max}$ for conjugate matching with an input reflection coefficient Γ_{IN} ;

15 adjusting a load reflection coefficient Γ_L to be a maximum load reflection coefficient $\Gamma_{L,max}$ for conjugate matching with an output reflection coefficient Γ_{OUT} ; and

repeating said above-mentioned steps on non-analyzing networks until all of networks are set.

Claim 12. (Original) The method for analyzing performance of a multi-stage radio frequency amplifier as in claim 11, wherein the method analyzes the simplified power source terminal reflection coefficient Γ_s of the front-stage matching network of the multi-stage radio frequency amplifier and the simplified back-stage matching network load reflection coefficient Γ_L .

Claim 13. (Original) The method for analyzing performance of a multi-stage radio frequency amplifier as in claim 11, wherein the method further provides:

obtaining an input terminal reflection coefficient Γ_s of a mid-stage matching network and a load reflection coefficient Γ_L ;

5 obtaining a power source matching network gain G_s and a load matching network gain G_L ;

modulating the power source matching network gain G_s to be a power source matching network maximum gain G_{smax} and the load matching network gain G_L to be a load matching network maximum gain G_{Lmax} by adjusting the reflection coefficient Γ_s and the reflection coefficient Γ_L , respectively; and
10 deriving maximum transferring rate and less gain loss.

Claim 14. (Original) The method for analyzing performance of a multi-stage radio frequency amplifier as in claim 11, wherein the method further provides:

identifying the accomplishment of analyzing the multi-stage radio frequency amplifier for a jump procedure;

re-executing the above-mentioned procedures when analysis of the multi-stage radio frequency amplifier is not performed; and

performing the jump procedure when analysis of the multi-stage radio frequency amplifier is complete.

Claim 15. (Original) The method for analyzing performance of a multi-stage radio frequency amplifier as in claim 12, wherein the method further provides:

measuring first-stage amplifier gain G_{01} , second-stage amplifier G_{02} , third-stage amplifier gain G_{03}, Nth-stage amplifier gain G_N as well as the input reflection coefficient Γ_{IN} and output reflection coefficient Γ_{OUT} by using a 50 ohms impedance; and

obtaining the power source terminal reflection coefficient Γ_s and the load reflection coefficient Γ_L of each mid-stage matching network.